

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The rejection of claims 1-6 and 9-14 under 35 U.S.C. §102 as allegedly anticipated by Natra EPA '156 is respectfully traversed.

The claimed invention relates to the supply of power to electronics placed within a node in a telecommunications network. Digital subscriber line (DSL) technology is close to the limits of what can be achieved in terms of transmission rates over the access network (the last link in a network between the subscribers premises and the exchange, which consist predominantly of twisted-pair copper wires). An increase in achievable data rates requires that electronics for providing DSL technology be installed closer to the subscriber, for example, in a network node at a cross connection point (the cabinet), or at the distribution point. The deployment of such network node electronics is dependent upon the reliable provision of power at a low cost. Supply from the exchange end is seldom viable owing to its distance from the network node.

It has previously been suggested to supply power to the network node electronics from the subscriber's premises. However, doing so conflicts with plain old telephony service (POTS) techniques where direct current (DC) power and telephony is supported over a single twisted-pair copper wire, and where a number of telephony signaling states are each represented by a DC voltage or line condition.

In applicant's invention, electrical power is supplied to electrical equipment (such as a DSL modem) located at the network node which is located relatively close to the subscribers premises. Telephony control signals are sent by the exchange on the electrical transmission line to the telephone. Signal conversion means located at the node convert these control signals into modified control signals having a different frequency than that of the electrical power. In the

embodiment shown in Figure 3, these comprise the components 313, 315, 317, 319, as summarized on page 21 lines 21 to 24, and more fully described on page 9 line 18 onwards. These modified signals then pass along the section of the transmission line from the node towards the telephone--but are converted back into telephony control signals before they reach the telephone. This is performed at the remote unit (213), using components (327, 325, 323 and 321) shown again in Figure 3

In this way, the electrical equipment in the network node can draw electrical power supplied onto the same electrical transmission line by a power supply located in the subscribers premises. This obviates the need for a second twisted-pair wire (which is expensive to provide) or voice support within DSL.

Natra also describes a way that power can be supplied at the subscriber end. Natra achieves this by the inclusion of a unit (10), which includes transformer T1 to isolate DC loop current between the telephone and the network, while continuing to allow for audio signals to pass: paragraph 21. A power supply (40) within the unit (10) powers the circuits and modules (50, 60, 70, 80), so that power need not be sent from the exchange to the unit; instead the exchange sends signals (outside the voice band) to the modules (60, 70) of the unit to activate them. See paragraphs 26 and 23. The unit (10) is located as shown in Figure 1, i.e. within the subscribers premises (5): paragraph 19.

By reference to applicant's claim 1, there are at least the following points of difference:

1. The power supply in Natra does not "supply electrical power on to the second [distribution] section" of the transmission line (which extends from the node to the telephone). In Natra, the power supply unit (40) is located within the unit (10), which in turn takes its supply from the mains supply (42) via a cable (44): paragraphs 21 and 19. Even assuming *arguendo* that the node is equivalent to the

unit (which is not the case), the power is nowhere in Natra said to be supplied onto cable 21a. Indeed, as stated in paragraphs 21 and 22, the DC loop current in the line generated from DC voltages is blocked from flowing in the wrong direction.

2. No signal conversion to modify the downstream control signals is performed in Natra. Instead the Natra method consists of "mediating" control signals by the generation of ringing and other voltages. As explained in paragraphs 10 and 23, this is done by the receipt at the unit, of not the AC ringing voltage itself, but a signal to instruct module (50) to generate the ringing voltage (specifically on column 5, line 56 to column 6, line 3). No conversion or modification of the signal received at the unit (10) is described, nor is there disclosed a signal converter in Natra.

The other independent claims 12 - 14 include similar features as those above which are not disclosed or suggested in Natra.

Given the fundamental deficiencies already noted with respect to the independent claims, it is not believed necessary to discuss additional deficiencies of Natra with respect to other features of the independent claims or the additional features brought out by the various rejected dependent claims. Suffice it to note that, as a matter of law, it is impossible for a reference to anticipate any claim unless it teaches each and every feature of that claim.

The rejection of claims 7-8 under 35 U.S.C. §103 as allegedly being made "obvious" based on Natra taken alone is also respectfully traversed.

Given the fundamental deficiencies of Natra already noted above with respect to the independent claims, it is not believed necessary to further discuss the additional features of rejected claims 7-8. However, it is noted that the Examiner admits Natra does not teach a bypass

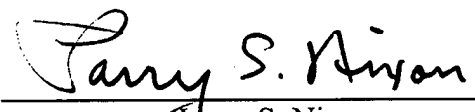
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unit. Instead, the Examiner alleges that Natra teaches power being fed from the exchange in both prior and current systems and that, in such configuration, the node would "necessarily function in a bypass manner since the voltage or signals would not be altered at the node." It thus appears that the Examiner's own discussion of Natra is directly contrary to at least applicant's claims which require the node itself to further, in fact, comprise the signal converter (e.g., see claim 3).

Accordingly, this entire application is now believed to be in allowable condition and a formal notice to that effect is respectfully solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Larry S. Nixon
Reg. No. 25,640

LSN:kmr
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100